

**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of	:	Kwok Pun Lee et al.
	:	
For	:	DICOM TO XML GENERATOR
	:	
Serial No.:	:	09/818,715
	:	
Filed	:	March 27, 2001
	:	
Art Unit	:	2178
	:	
Examiner	:	Thu V. Huynh
	:	
Att. Docket	:	US010071
	:	
Confirmation No.	:	1324

**APPEAL BRIEF**

Mail Stop Appeal Brief Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed March 12, 2006.

**I. REAL PARTY IN INTEREST**

The real party in interest is KONINKLIJKE PHILIPS ELECTRONICS, N.V., by way of an Assignment recorded at Reel 011654, frame 0011.

**II. RELATED APPEALS AND INTERFERENCES**

Following are identified any prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which

will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal:

NONE.

### **III. STATUS OF CLAIMS**

This is an appeal from the final rejection of claims 1-4, 6-11, 13, and 14, dated September 11, 2006. Claims 5 and 12 are canceled. No other claims are pending. No claims are allowed.

### **IV. STATUS OF AMENDMENTS**

All amendments have been entered into the record.

### **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Independent claim 1 recites a method for mapping a DICOM-SR document into an XML document, comprising the steps of mapping each DICOM attribute of a plurality of DICOM attributes in the DICOM-SR document into a corresponding XML element of a plurality of XML elements (See Figs. 1-3; page 3, lines 13-22; page 5, lines 16-26; page 6, line 16 through page 7, line 23) and outputting each XML element of the plurality of XML elements to the XML document, in a format that conforms to an XML document-type-definition of the XML document (See Figs. 1-3; page 5, line 24 through page 6 line 14; page 7, lines 25-30), wherein the mapping of each DICOM attribute into a corresponding XML element is independent of the XML document-type-definition of

the XML document (see Figs. 1-5; page 5, line 24 through page 6 line 14; page 7, lines 25-30; page 8, line 1 through page 9, line 6).

Independent claim 8 recites a DICOM to XML conversion system that comprises a DICOM parser that is configured to provide a plurality of DICOM attributes from a DICOM data file (See Figs. 1-3; page 3, lines 13-22; page 6, lines 18-25), an XML formatter, operably coupled to the DICOM parser, that is configured to provide a plurality of XML elements corresponding to the plurality of DICOM attributes (See Figs. 1-3; page 3, lines 13-22; page 6, line 26 through page 7, line 23), and an XML builder operably coupled between the DICOM parser and the XML formatter, said XML builder being configured to effect a direct mapping of each DICOM attribute of the plurality of DICOM attributes into a corresponding XML element of the plurality of XML elements independent of an XML document-type-definition of an XML document comprising the plurality of XML elements (See Figs. 1-3; page 3, lines 13-22; page 7, line 25 through page 9, line 6).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

The following grounds of rejection are presented for review:

A. Claims 1-4, 6-11, 13, and 14 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Clunie, "DICOM Structured Reporting" (hereinafter "Clunie") in view of U.S. Publication No. 2002/0049790 to Ricker et al. (hereinafter "Ricker").

## VII. ARGUMENT

### A. Rejection of Claims 1-4, 6-11, 13, and 14 Under 35 U.S.C. §103(a)

The Final Office Action dated September 11, 2006, rejects claims 1-4, 6-11, 13, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Clunie in view of Ricker. It is respectfully requested that this rejection be reversed for at least the following reasons.

Appellant notes that the Office Action Summary and paragraph 2 on page 2 of the Office Action inadvertently omit claim 14 as a claim that is pending in the Application. However, Appellant notes that the first paragraph in section 5 at the bottom of page 2 and the paragraph bridging pages 10 and 11 both correctly acknowledge claim 14 as pending in the Application.

#### 1. Claim 1

Claim 1 recites "mapping each DICOM attribute . . . wherein the mapping of each DICOM attribute into a corresponding XML element is independent of the XML document-type-definition of the XML document." This subject matter relates to mapping each DICOM attribute to an XML element without using an XML document-type-definition. In other words, the mapping step outputs raw XML data, which is subsequently formatted according to a document-type-definition in a second, independent step. By partitioning the XML mapping from the XML formatting, the resulting system is more flexible and robust than a system in which the mapping step applies the document-type-definition.

Appellant respectfully submits that Ricker does not disclose, teach, or suggest this subject matter. In the Final Office Action dated September 11, 2006, the Examiner correctly acknowledges that the data dictionaries of Ricker are "equivalent" to document-type-definitions. See page 11, lines

9-12. The Examiner's acknowledgment that the dictionary of Ricker is equivalent to a document-type-definition is sufficient to conclude that Ricker does not disclose, teach, or suggest the above-quoted subject matter.

As shown in Figure 1 of Ricker, the transformation engine uses the data dictionary to convert the EDI document to an XML document. As further illustrated in Figure 2, the transformation engine reads a piece of the EDI document, selects a corresponding tag from the data dictionary to designate the XML element, and creates the corresponding XML elements. Because the data dictionary is equivalent to a document-type-definition, the mapping from EDI to XML includes the use of a document-type-definition. Thus, the mapping step of Ricker utilizes a document-type-definition and, by definition, cannot be "independent of the XML document-type-definition," as recited in claim 1.

This conclusion is further supported by the Examiner's statement in the Advisory Action dated December 8, 2006. In the Advisory Action, the Examiner argued that it allegedly "would have been obvious to a person of ordinary skill in the art to use a dictionary in [the] mapping process to avoid rewriting of the DTD of the XML document." Again, this statement shows that the dictionary is a part of the mapping process. Because the document-type-definition is equivalent to the dictionary, the mapping process of Ricker utilizes a data dictionary. Therefore the mapping step of Ricker is not "independent of the XML document-type-definition," as recited in claim 1.

Appellant further submits that the Examiner has misconstrued the above-quoted subject matter. In the Final Office Action, the Examiner states that Ricker "teaches mapping each EDI element to XML element using dictionaries wherein the XML document may and may not [sic] have

DTD(s)" (emphasis in original). See page 11, lines 9-12. This statement is irrelevant to the requirement that the mapping is "independent of the XML document-type-definition" and further indicates that the Examiner has misunderstood the subject matter of claim 1. Even assuming that the Examiner's statement is correct, it merely indicates that the system of Ricker does not always use an XML document-type-definition as the data dictionary. This statement has no bearing on the determination of whether Ricker discloses, teaches, or suggests the above-quoted subject matter.

Accordingly, Ricker fails to disclose, teach, or suggest "mapping each DICOM attribute . . . wherein the mapping of each DICOM attribute into a corresponding XML element is independent of the XML document-type-definition of the XML document," as recited in claim 1. As the Final Office Action correctly concedes, Clunie also does not disclose, teach, or suggest this subject matter. See page 4, lines 1-5.

Consequently, Appellant respectfully submits that the combination of Clunie and Ricker fails to disclose, teach, or suggest "outputting each XML element . . . wherein the mapping of each DICOM attribute into a corresponding XML element is independent of the XML document-type-definition of the XML document," as recited in claim 1. For at least the forgoing reasons, Appellant respectfully requests that the honorable Board reverse the rejection of claim 1 under 35 U.S.C. § 103.

## 2. Claims 2-4

Claims 2-4 depend from claim 1 and are therefore also patentable for at least the reasons stated above in connection with claim 1, as well as for the separately patentable subject matter recited therein. Accordingly, the honorable Board is respectfully requested to reverse the rejection of claims 2-4.

3. Claim 6

Claim 6 depends from claim 1 and is therefore patentable over Clunie in view of Ricker for at least the reasons stated above in connection with claim 1. Further regarding claim 6, the claim recites "mapping the DICOM data type to a corresponding value type of the corresponding XML element." This subject matter relates to looking up a DICOM data type and determining a corresponding XML value type. For example, as illustrated in Figure 3, if the DICOM data type is "US," the corresponding XML value type is "unsigned short."

Appellant respectfully submits that Clunie does not disclose, teach, or suggest this subject matter. On page 6, lines 3-5 of the Final Office Action, the Examiner alleges that Clunie shows this subject matter on p. 308. Specifically, the Examiner states that Clunie shows "mapping PNAME to value type PNAME of XML element <valuetype>." This section of Clunie shows that the XML representation of the DICOM data simply stores the DICOM data type and does not perform a mapping from the DICOM data type to an XML value type. In other words, the DICOM value type is stored in the content section of the XML element, not mapped to an XML value type. Accordingly, Clunie does not disclose, teach, or suggest "mapping the DICOM data type to a corresponding value type of the corresponding XML element," as recited in claim 6.

Appellant respectfully submits that Ricker also does not disclose, teach, or suggest this subject matter. Ricker relates to a system for converting from EDI to XML. As illustrated by the included portion of an EDI document converted into XML code, the XML representations of Ricker do not include an XML value type. See paragraph [0069]-[0073]. The system of Ricker simply puts all information from the EDI document into an XML representation without determining the

corresponding XML value type. For example, the system Ricker does not map the value type of the element "N1\*ST" to the XML value type "string" and instead parses the EDI element into individual XML tags. Ricker therefore does not disclose, teach, or suggest "mapping the DICOM data type to a corresponding value type of the corresponding XML element," as recited in claim 6.

Appellant respectfully submits that the combination of Clunie and Ricker fails to disclose, teach, or suggest "mapping the DICOM data type to a corresponding value type of the corresponding XML element," as recited in claim 6. For at least the forgoing reasons, Appellant respectfully requests that the honorable Board reverse the rejection of claim 6 under 35 U.S.C. § 103.

#### 4. Claim 7

Claim 7 depends from claim 6 and is therefore patentable for at least the reasons stated above in connection with claim 6, as well as for the separately patentable subject matter recited therein. Accordingly, the honorable Board is respectfully requested to reverse the rejection of claim 7.

#### 5. Claim 8

Claim 8 recites "an XML builder . . . being configured to effect a direct mapping of each DICOM attribute of the plurality of DICOM attributes into a corresponding XML element of the plurality of XML elements independent of an XML document-type-definition of an XML document comprising the plurality of XML elements." This subject matter relates to mapping each DICOM attribute to an XML element without using an XML document-type-definition. In other words, the mapping step outputs raw XML data, which is subsequently formatted according to a document-type-definition in a second, independent step. By partitioning the XML mapping from the XML



formatting, the resulting system is more flexible by allowing the use of the same builder regardless of the particular output format.

Appellant respectfully submits that Ricker does not disclose, teach, or suggest this subject matter. In the Final Office Action dated September 11, 2006, the Examiner correctly acknowledges that the data dictionaries of Ricker are "equivalent" to document-type-definitions. See page 11, lines 9-12. The Examiner's acknowledgment that the dictionary of Ricker is equivalent to a document-type-definition is sufficient to conclude that Ricker does not disclose, teach, or suggest the above-quoted subject matter.

As shown in Figure 1 of Ricker, the transformation engine uses the data dictionary to convert the EDI document to an XML document. As further illustrated in Figure 2, the transformation engine reads a piece of the EDI document, selects a corresponding tag from the data dictionary to designate the XML element, and creates the corresponding XML elements. Because the data dictionary is equivalent to a document-type-definition, the mapping from EDI to XML includes the use of a document-type-definition. Thus, the mapping of Ricker utilizes a document-type-definition and, by definition, cannot be "independent of an XML document-type-definition," as recited in claim 8.

This conclusion is further supported by the Examiner's statement in the Advisory Action dated December 8, 2006. In the Advisory Action, the Examiner argued that it allegedly "would have been obvious to a person of ordinary skill in the art to use a dictionary in [the] mapping process to avoid rewriting of the DTD of the XML document." Again, this statement shows that the dictionary is a part of the mapping process. Because the document-type-definition is equivalent to the

dictionary, the mapping process of Ricker utilizes a data dictionary. Therefore the mapping step of Ricker is not "independent of an XML document-type-definition," as recited in claim 8.

Appellant further submits that the Examiner has misconstrued the above-quoted subject matter. In the Final Office Action, the Examiner states that Ricker "teaches mapping each EDI element to XML element using dictionaries wherein the XML document may and may not [sic] have DTD(s)" (emphasis in original). See page 11, lines 9-12. This statement is irrelevant to the requirement that the mapping is "independent of an XML document-type-definition" and further indicates that the Examiner has misunderstood the subject matter of claim 8. Even assuming that the Examiner's statement is correct, it merely indicates that the system of Ricker does not always use an XML document-type-definition as the data dictionary. This statement has no bearing on the determination of whether Ricker discloses, teaches, or suggests the above-quoted subject matter.

Accordingly, Ricker fails to disclose, teach, or suggest "an XML builder . . . being configured to effect a direct mapping of each DICOM attribute of the plurality of DICOM attributes into a corresponding XML element of the plurality of XML elements independent of an XML document-type-definition of an XML document comprising the plurality of XML elements," as recited in claim 8. As the Final Office Action correctly concedes, Clunie also does not disclose, teach, or suggest this subject matter. See page 4, lines 1-5.

Consequently, Appellant respectfully submits that the combination of Clunie and Ricker fails to disclose, teach, or suggest "an XML builder . . . being configured to effect a direct mapping of each DICOM attribute of the plurality of DICOM attributes into a corresponding XML element of the plurality of XML elements independent of an XML document-type-definition of an XML

document comprising the plurality of XML elements,” as recited in claim 8. For at least the forgoing reasons, Appellant respectfully requests that the honorable Board reverse the rejection of claim 8 under 35 U.S.C. § 103.

6. Claims 9-11

Claims 9-11 depend from claim 8 and are therefore patentable for at least the reasons stated above in connection with claim 8, as well as for the separately patentable subject matter recited therein. Accordingly, the honorable Board is respectfully requested to reverse the rejection of claims 9-11.

7. Claim 13

Claim 13 depends from claim 8 and is therefore patentable over Clunie in view of Ricker for at least the reasons stated above in connection with claim 8. Further regarding claim 13, the claim recites an XML builder configured to “map the DICOM data type to a corresponding value type of the corresponding XML element.” This subject matter relates to looking up a DICOM data type and determining a corresponding XML value type. For example, as illustrated in Figure 3, if the DICOM data type is “US,” the corresponding XML value type is “unsigned short.”

Appellant respectfully submits that Clunie does not disclose, teach, or suggest this subject matter. On page 6, lines 3-5 of the Final Office Action, the Examiner alleges that Clunie shows this subject matter on p. 308. Specifically, the Examiner states that Clunie shows “mapping PNAME to value type PNAME of XML element <valuetype>.” This section of Clunie shows that the XML representation of the DICOM data simply stores the DICOM data type and does not perform a mapping from the DICOM data type to an XML value type. In other words, the DICOM value type

is stored in the content section of the XML element, not mapped to an XML value type. Accordingly, Clunie does not disclose, teach, or suggest an XML builder configured to "map the DICOM data type to a corresponding value type of the corresponding XML element," as recited in claim 13.

Appellant respectfully submits that Ricker also does not disclose, teach, or suggest this subject matter. Ricker relates to a system for converting from EDI to XML. As illustrated by the included portion of an EDI document converted into XML code, the XML representations of Ricker do not include an XML value type. See paragraph [0069]-[0073]. The system of Ricker simply puts all information from the EDI document into an XML representation without determining the corresponding XML value type. For example, the system Ricker does not map the value type of the element "N1\*ST" to the XML value type "string" and instead parses the EDI element into individual XML tags. Ricker therefore does not disclose, teach, or suggest an XML builder configured to "map the DICOM data type to a corresponding value type of the corresponding XML element," as recited in claim 13.

Appellant respectfully submits that the combination of Clunie and Ricker fails to disclose, teach, or suggest an XML builder configured to "map the DICOM data type to a corresponding value type of the corresponding XML element," as recited in claim 13. For at least the forgoing reasons, Appellant respectfully requests that the honorable Board reverse the rejection of claim 13 under 35 U.S.C. § 103.


8. Claim 14

Claim 14 depends from claim 13 and is therefore patentable for at least the reasons stated above in connection with claim 13, as well as for the separately patentable subject matter recited therein. Accordingly, the honorable Board is respectfully requested to reverse the rejection of claim 14.

**CONCLUSION**

For at least the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1-4, 6-11, 13, and 14 are in condition for allowance. For at least the above reasons, Appellants respectfully request that this Honorable Board reverse the rejections of claims 1-4, 6-11, 13, and 14.

Respectfully submitted,  
**KRAMER & AMADO, P.C.**

  
Terry W. Kramer  
Reg. No. 41,541

April 16, 2007

Date

KRAMER & AMADO, P.C.  
1725 Duke Street, Suite 240  
Alexandria, VA 22314  
Tel. (703) 519-9801  
Fax. (703) 519-9802

**DIRECT ALL CORRESPONDENCE TO :**

Aaron Waxler – Registration No.: 48,027  
US PHILIPS CORPORATION  
P.O. Box 3001  
Briarcliff Manor, NY 10510-8001  
Phone: (914) 333-9627  
Fax: (914) 332-0615

## VIII. CLAIMS APPENDIX

### CLAIMS INVOLVED IN THE APPEAL:

1. A method for mapping a DICOM-SR document into an XML document, comprising:  
mapping each DICOM attribute of a plurality of DICOM attributes in the DICOM-SR document into a corresponding XML element of a plurality of XML elements, and  
outputting each XML element of the plurality of XML elements to the XML document, in a format that conforms to an XML document-type-definition of the XML document,  
wherein the mapping of each DICOM attribute into a corresponding XML element is independent of the XML document-type-definition of the XML document.
2. The method of claim 1, wherein outputting each XML element includes formatting the XML element via one or more XSLT templates to conform to the XML document-type-definition.
3. The method of claim 2, wherein the formatting of the XML element is via an XSLT engine.
4. The method of claim 2, wherein the one or more XSLT templates correspond to one or more DICOM Information Entities.
6. The method of claim 1, further including:  
parsing each DICOM attribute to segregate a DICOM data type, and a DICOM codeID from the DICOM attribute, and wherein the mapping includes:

assigning the DICOM codeID to a first attribute of the corresponding XML element,  
mapping the DICOM data type to a corresponding value type of the corresponding XML  
element, and

assigning the corresponding value type to a second attribute of the corresponding XML  
element.

7. The method of claim 6, further including parsing the DICOM attribute to segregate a DICOM  
attribute value, and wherein the mapping further includes

assigning the DICOM attribute value to a third attribute of the corresponding XML element.

8. A DICOM to XML conversion system that comprises:

a DICOM parser that is configured to provide a plurality of DICOM attributes from a  
DICOM data file,

an XML formatter, operably coupled to the DICOM parser, that is configured to provide a  
plurality of XML elements corresponding to the plurality of DICOM attributes, and

an XML builder operably coupled between the DICOM parser and the XML formatter, said  
XML builder being configured to effect a direct mapping of each DICOM attribute of the plurality of  
DICOM attributes into a corresponding XML element of the plurality of XML elements independent  
of an XML document-type-definition of an XML document comprising the plurality of XML  
elements.



9. The DICOM to XML conversion system of claim 8, wherein the XML formatter is configured to provide the plurality of XML elements in a format that conforms to the XML document-type-definition of the XML document.

10. The DICOM to XML conversion system of claim 9, wherein the XML formatter includes an XSLT engine that is configured to provide the plurality of XML elements based on one or more XSLT stylesheet templates that conform to the XML document-type-definition.

11. The DICOM to XML conversion system of claim 10, wherein the one or more XSLT stylesheet templates correspond to one or more DICOM Information Entities.

13. The DICOM to XML conversion system of claim 8, wherein the DICOM parser is configured to parse each DICOM attribute to provide a DICOM data type, and a DICOM codeID from the DICOM attribute, and the XML builder is configured to:

assign the DICOM codeID to a first attribute of the corresponding XML element,

map the DICOM data type to a corresponding value type of the corresponding XML element,

and

assign the corresponding value type to a second attribute of the corresponding XML element.

14. The DICOM to XML conversion system of claim 13, wherein the DICOM parser is further configured to parse each DICOM attribute to provide a DICOM attribute value, and the XML builder

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is further configured to assign the DICOM attribute value to a third attribute of the corresponding XML element.

**IX. EVIDENCE APPENDIX**

A copy of the following evidence 1) entered by the Examiner, including a statement setting forth where in the record the evidence was entered by the Examiner, 2) relied upon by the Appellant in the appeal, and/or 3) relied upon by the Examiner as to the grounds of rejection to be reviewed on appeal, is attached:

None.

**X. RELATED PROCEEDINGS APPENDIX**

Copies of relevant decisions in prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal are attached:

None.